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ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/6 6/20
TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)
APR 81 M H WEEKS, M J TOPPER

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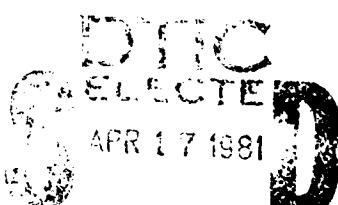
ABERDEEN PROVING GROUND, MD 21010

TOPICAL HAZARD EVALUATION PROGRAM
OF CANDIDATE INSECT REPELLENTS

AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a

US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS

STUDY NOS. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, 75-51-0161-81
SEPTEMBER 1976 - DECEMBER 1980.



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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

14

USAELHA-75-51-0001-81

USAELHA-75-1-0006-81

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	75-51-0001, 0006, 0121, and 0161-81	2. GOVT ACCESSION NO.
4. TITLE (and subtitle)		5. TYPE OF REPORT & PERIOD COVERED
Topical Hazard Evaluation Program of Candidate Insect Repellents AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a, US Department of Agriculture Proprietary Chemicals, Study Nos. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, and 75-51-0161-81,		Final, Sep 76 - Dec 80
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
MAURICE H. WEEKS MICHAEL J. TOPPER, CPT, VC		18-USAELHA, USAELHA
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
US Army Environmental Hygiene Agency Aberdeen Proving Ground, MD 21010		11/15 Acr 81
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE
Commander US Army Health Services Command Fort Sam Houston, TX 78234		Sep 76 - Dec 80
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES
(12) 25		22
16. DISTRIBUTION STATEMENT (of this Report)		15. SECURITY CLASS. (of this report)
(9) Final rep't.		Unclassified
Approved for public release; distribution unlimited.		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
(1) 75-51-0121-81		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 6, if different from Report)		
(75-1-0161-81)		
18. SUPPLEMENTARY NOTES		A
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
USDA Proprietary Chemicals Topical Hazard Evaluation ALD		
AI3-36340-a Candidate repellent Guinea pig sensitiza-		
AI3-35941-a Skin irritation tion test		
AI3-37418-a Eye irritation		
AI3-37331-a photochemical irritation		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
Preliminary hazard evaluations of AI3-36340-a, AI3-35941-a, AI3-37418-a, and AI3-37331-a, USDA Proprietary Chemicals, were performed by means of laboratory animal studies using rats, rabbits, and guinea pigs. The technical grade compounds did not cause primary irritation of the skin or eye, and were not photo-irritants. They did not prove to be skin sensitizers or to be acutely toxic by ingestion. It was recommended that the four chemicals be approved for further testing as candidate insect repellents.		



DEPARTMENT OF THE ARMY Mr. Weeks/mhb/AUTOVON
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY 584-3980
ABERDEEN PROVING GROUND, MARYLAND 21010

REPLY TO
ATTENTION OF
HSE-LT-T/WP

15 APR 1961

SUBJECT: Topical Hazard Evaluation Program of Candidate Insect Repellents
AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a, US Department
of Agriculture Proprietary Chemicals, Study Nos. 75-51-0001-81,
75-51-0006-81, 75-51-0121-81, 75-51-0161-81, September 1976 -
December 1980

Executive Secretary
Armed Forces Pest Management Board
Forest Glen Section, WRAMC
Washington, DC 20012

A summary of the pertinent findings and recommendations of the inclosed report follows:

Preliminary hazard evaluations of AI3-36340-a, AI3-35941-a, AI3-37418-a, and AI3-37331-a, USDA Proprietary Chemicals, were performed by means of laboratory animal studies using rats, rabbits, and guinea pigs. The technical grade compounds did not cause primary irritation of the skin or eye, and were not photo-irritants. They did not prove to be skin sensitizers or to be acutely toxic by ingestion. It was recommended that the four chemicals be approved for further testing as candidate insect repellents.

FOR THE COMMANDER:

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DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

REPLY TO
ATTENTION OF

HSE-LT-T/WP

TOPICAL HAZARD EVALUATION PROGRAM
OF CANDIDATE INSECT REPELLENTS

AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a

US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS

STUDY NOS. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, 75-51-0161-81
SEPTEMBER 1976 - DECEMBER 1980

1. AUTHORITY.

a. Letter, US Department of Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man Research Laboratory, Gainesville, Florida, 29 September 1976 (AI3-36340-a and AI3-35941-a).

b. Letter, US Department of Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man Research Laboratory, Gainesville, Florida, 9 August 1978 (AI3-37418-a).

c. Letter, US Department of Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man Research Laboratory, Gainesville, Florida, 13 October 1978 (AI3-37331-a).

d. Memorandum of Understanding between the US Army Environmental Hygiene Agency; the US Army Health Services Command; the Department of the Army Office of The Surgeon General; the Armed Forces Pest Control Board; and the US Department of Agriculture, Agricultural Research, Science and Education Administration, titled, Coordination of Biological and Toxicological Testing of Pesticides, effective 23 January 1979.

2. REFERENCE. Toxicology Division Procedural Guide, US Army Environmental Hygiene Agency (USAEEHA), 1972, revised 1976.

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of candidate insect repellents AI3-36340-a, AI3-35941-a, AI3-37418-a, and AI3-37331-a, USDA Proprietary Chemicals.

4. SUMMARY OF FINDINGS. Hazard evaluations of the candidate repellents AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a, USDA Proprietary Chemicals, were conducted by this Agency using New Zealand White rabbits for skin and eye studies, Hartley guinea pigs for a skin sensitization study, and Sprague-Dawley rats for determination of acute oral toxicity. A tabular presentation of animal toxicity data developed in this Agency follows:^{*†}

* In conducting the studies described in this report, the investigators adhered to the "Guide for the Care and Use of Laboratory Animals," US Department of Health, Education and Welfare Publication No. (NIH) 74-23, revised 1978.

† The experiments reported herein were performed in animal facilities fully accredited by the American Association for the Accreditation of Laboratory Animal Care.

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Sep 76 - Dec 80

TABLE. PRESENTATION OF DATA

Test	Results	Interpretation
<u>SKIN IRRITATION STUDIES</u>		
<u>Rabbits</u>		
Single 24-hour application to intact and abraded skin of New Zealand White rabbits.	AI3-36940-a, AI3-35941-a, AI3-37331-a produced no irritation of the intact skin or of the skin surrounding an abrasion.	USAEHA Category I (ref Appendix A)
0.5 mL of each technical grade compound applied to each of six rabbits.	AI3-37418-a produced moderate primary irritation on both intact and abraded skin areas of all rabbits. Detail of results are shown in Appendices B, C, D, & E	USAEHA Category II (ref Appendix A)
<u>EYE IRRITATION STUDIES</u>		
<u>Rabbits</u>		
Single 24-hour application of 0.1 mL technical grade compound to one eye of each of six New Zealand White rabbits.	AI3-36340-a caused mild corneal damage and conjunctivitis in all rabbits up to 3 days after application, but appeared normal at 7 days.	USAEHA Category C (ref Appendix A)
	AI3-35941-a did not cause irritation to the eyes of rabbits.	USAEHA Category A (ref Appendix A)
	AI3-37418-a caused slight transient corneal opacity and conjunctivitis in 2 of 6 rabbits at 24 hours but none at 48 hours.	USAEHA Category A (ref Appendix A)
	AI3-37331-a caused very slight transient conjunctivitis in 4 of 6 rabbits at 24 hours but none at 48 hours.	USAEHA Category A (ref Appendix A)
	Results are shown in detail in Appendices F, G, H, and I.	
<u>APPROXIMATE LETHAL DOSE (ALD)</u>		
<u>Oral</u>		
<u>Rats (male) - no diluent</u>		
	AI3-36340-a ALD > 6500 mg/kg	Technical grade repellents present no acute lethal hazard from ingestion.
	AIE-35941-a ALD - 4300 mg/kg	
	AI3-37418-a ALD - 6500 mg/kg	
	AI3-37331-a ALD - 4300 mg/kg	

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Test	Results	Interpretation
<u>PHOTOCHEMICAL SKIN IRRITATION STUDIES</u>		
<u>Rabbits</u>		
	<p>A single 0.05 mL application of a 25 percent (w/v) solution of each compound and a 10 percent (w/v) Oil of Bergamot solution (positive control) in 95 percent ethyl alcohol were applied to the intact skin of six rabbits. Five minutes after application, the rabbits were exposed to UV light (365 nm) for 30 minutes at a distance of 10-15 cm.</p> <p>Alcohol solutions of the four candidate repellents AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a caused no photochemical irritation reactions under test conditions. However, ethanol solutions of AI3-37418-a caused irritation on both irradiated and non-irradiated skin sites.</p>	<p>The candidate repellents are not expected to cause a photochemical irritation in humans.</p>
<u>Control</u>		
	<p>Following UV exposure of the rabbits, 0.05 mL of test compound, positive control and diluent were applied to additional skin areas to serve as unirradiated control sites. Application areas were checked for skin irritation at 24, 48 and 72 hours.</p> <p>Positive control application and irradiation caused greater irritant effects than in unirradiated skin areas.</p> <p>Results are shown in detail in Appendices J, K, L and M.</p>	<p>Ethanol solutions of AI3-37418-a may cause irritant reactions to sensitive individuals and, when occurring, should be washed off immediately.</p>

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Test	Results	Interpretation
SENSITIZATION STUDIES		
Guinea Pigs (Male)		
Intradermal injections of 0.1 mL of a 0.1 percent solution (w/v) of AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a or of dinitrochlorobenzene (DNCB)* in a mixture containing 1 volume of propylene glycol and 29 volumes of saline.	Ten test guinea pigs for sensitizing doses over a 3-week period. After 2 weeks' rest, they were challenged with ID injections of each test compound.	Challenge doses of AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a did not produce a sensitization reaction.
Ten positive control guinea pigs were sensitized over 3 weeks with DNCB. After 2 weeks rest, they were challenged with ID injections of DNCB.	Challenge dose of DNCB in positive control guinea pigs produced a marked sensitization reaction in 10 out of 10 guinea pigs.	AI3-36340-a, AI3-35941-a, AI3-37418-a, AI3-37331-a, USDA Proprietary Chemicals, did not produce sensitization reactions under test conditions and are not expected to produce sensitization reactions in man.
Results are shown in detail in Appendices N, O, P, and Q.		DNCB produced a marked reaction, indicating the guinea pigs respond to strong sensitizing agents.

* A known skin sensitizer

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5. CONCLUSION. Technical grade chemicals AI3-36340-a AI3-35941-a, AI3-37418-a, and AI3-37331-a did not cause significant primary skin or eye irritation reactions, no photochemical irritation, no sensitization reactions and do not present an acute ingestion hazard.

6. RECOMMENDATION. Under the provisions of the Memorandum of Understanding (paragraph 1d), it is recommended that AI3-36340-a, AI3-35941-a, AI3-37418-a, and AI3-37331-a, USDA proprietary chemicals, be approved for further testing as candidate insect repellents. Ethanol solutions of AI3-37418-a may cause irritant reactions in sensitive individuals and when occurring should be washed off the skin immediately.



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APPROVED:



ARTHUR H. McCRESH, Ph.D.
Chief, Toxicology Division

APPENDIX A

TOPICAL HAZARD EVALUATION PROGRAM
DEFINITIONS OF CATEGORIES OF COMPOUNDS BEING
CONSIDERED FOR ACUTE SKIN APPLICATION

CATEGORY I - Compounds producing no primary irritation of the intact skin or no greater than mild primary irritation of the skin surrounding an abrasion. (INTERPRETATION: No restriction for acute application to the human skin.)

CATEGORY II - Compounds producing mild primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should be used only on human skin found by examination to have no abrasions or may be used as a clothing impregnant.)

CATEGORY III - Compounds producing moderate primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should not be used directly on the skin without a prophetic patch test having been conducted on humans to determine irritation potential to human skin. May be used without patch testing, with extreme caution, as clothing impregnants. Compound should be resubmitted in the form and at the intended use concentration so that its irritation potential can be reexamined using other test techniques on animals.)

CATEGORY IV - Compounds producing moderate to severe primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesication, and/or eschars. (INTERPRETATION: Should be resubmitted for testing in the form and at the intended use concentration. Upon resubmission, its irritation potential will be reexamined using other test techniques on animals, prior to possible prophetic patch testing in humans, at concentrations which have been shown not to produce primary irritation in animals.)

CATEGORY V - Compounds impossible to classify because of staining of the skin or other masking effects owing to physical properties of the compound. (INTERPRETATION: Not suitable for use on humans.)

EYE CATEGORIES:

A. Compounds noninjurious to the eye. INTERPRETATION: Irritation of human eyes is not expected if the compound should accidentally get into the eyes, provided it is washed out as soon as possible.

B. Compounds producing mild injury to the cornea. INTERPRETATION: Should be used with caution around the eyes.

C. Compounds producing mild injury to the cornea, and in addition some injury to the conjunctiva. INTERPRETATION: Should be used with caution around the eyes and mucosa.

D. Compounds producing moderate injury to the cornea. INTERPRETATION: Should be used with extreme caution around the eyes.

E. Compounds producing moderate injury to the cornea, and in addition producing some injury to the conjunctiva. INTERPRETATION: Should be used with extreme caution around the eyes and mucosa.

F. Compounds producing severe injury to the cornea and to the conjunctiva. INTERPRETATION: Should be used with extreme caution. It is recommended that use be restricted to areas other than the face.

Study Nos. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, 75-51-0161-81,
Sep 76 - Dec 80

APPENDIX B

COMPOUND: AI3-36340-a		PRIMARY SKIN EFFECTS NEW ZEALAND WHITE RABBITS		AEHA TOXICITY CATEGORY I		CONDITIONS - Light yellow viscous liquid. Single 24-hour application of 0.5 mL technical grade compound per skin application site.		USAEHA STUDY NO. 75-51-0001-81					
								Time of Observation (Hours)	Response Rabbit No.	Mean Score	Comments		
								1	2	3	4	5	6
Erythema & Eschar													
Intact Skin	24							0	0	0	0	0	
Intact Skin	72							0	0	0	0	0	
Abraded Skin	24							0	0	2	0	0.7	
Abraded Skin	72							0	0	0	0	0	
										Subtotal		0.7	
Edema Formulation													
Intact Skin	24							0	0	0	0	0	
Intact Skin	72							0	0	0	0	0	
Abraded Skin	24							0	0	0	0	0	
Abraded Skin	72							0	0	0	0	0	
										Subtotal		0	
										Total		0.7	

Study Nos. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, 75-51-0161-81,
Sep 76 - Dec 80

APPENDIX C

COMPUND: AI3-35941-a	USAEHA STUDY NO. 75-51-0006-81																																																																															
PRIMARY SKIN EFFECTS NEW ZEALAND WHITE RABBITS	AEHA TOXICITY CATEGORY I																																																																															
	CONDITIONS - Clear dark brown liquid. Single 24-hour application of 0.5 mL technical grade compound per skin application site.																																																																															
	<table border="1"> <thead> <tr> <th rowspan="2">Time of Observation (Hours)</th> <th colspan="6">Response</th> <th rowspan="2">Mean Score</th> <th rowspan="2">Comments</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>24</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>72</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>24</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td>72</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Subtotal</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0</td> </tr> </tbody> </table>	Time of Observation (Hours)	Response						Mean Score	Comments	1	2	3	4	5	6	24	0	0	0	0	0	0	0	72	0	0	0	0	0	0	0	24	0	0	0	0	0	0	0	72	0	0	0	0	0	0	0								Subtotal								0																
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APPENDIX D

COMPOUND: AI3-37418-a		USAEHA Study No. 75-51-0121-81									
PRIMARY SKIN EFFECTS NEW ZEALAND WHITE RABBITS		USAEHA TOXICITY CATEGORY II		CONDITIONS - clear colorless liquid Single 24-hour application of 0.5 mL technica grade compound per skin application site.							
	Time of Observation (Hours)	Response Rabbit No.						Mean Score	Comments		
		1	2	3	4	5	6				
<u>Erythema & Eschar</u>									Skin appeared normal at 7 days.		
Intact Skin	24	2	2	1	1	0	2	1.3			
Intact Skin	72	3	3	2	2	1	1	2.0			
Abraded Skin	24	2	2	2	1	1	1	1.3			
Abraded Skin	72							1.3			
								5.9			
<u>Edema Formulation</u>											
Intact Skin	24	0	0	1	0	0	0	0.3			
Intact Skin	72	2	2	0	0	0	0	0.6			
Abraded Skin	24	0	0	0	0	0	0	0			
Abraded Skin	72							0			
								0.9			
								Total	6.8		

APPENDIX E

COMPOUND: A13-37331-a

IIISAEHA Study No 75-51-0161-81

PRIMARY SKIN EFFECTS NEW ZEALAND WHITE RABBITS		USAEHA TOXICITY CATEGORY I	CONDITIONS - Clear liquid Single 24-hour application of 0.5 mL technical grade compound per skin application site.				
TIME OF OBSERVATION (Hours)	RESPONSE RABBIT NO.					MEAN SCORE	COMMENTS
		1	2	3	4		
Erythema & Eschar							
Intact Skin	24	0	0	0	0	0	
Intact Skin	72	0	0	0	0	0	
Abraded Skin	24	0	0	0	0	0	
Abraded Skin	72	0	0	0	0	0	
		Subtotal					
Edema Formulation							
Intact Skin	24	0	0	0	0	0	
Intact Skin	72	0	0	0	0	0	
Abraded Skin	24	0	0	0	0	0	
Abraded Skin	72	0	0	0	0	0	
		Subtotal					
		Total					

APPENDIX F

COMPUND: AI3-36340-a

USAEHA STUDY NO. 75-51-0001-81

Study Nos. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, 75-51-0161-81,
Sep 76 - Dec 80

TIME of Reading Hrs-Days	ACUTE EYE EFFECTS NEW ZEALAND WHITE RABBITS	AEHA TOXICITY CATEGORY C	CONDITIONS -					
			Single 24-hour application of 0.1 mL technical grade compound to one eye of each rabbit.					
Structure		Scores	Rabbit No.					
			1	2	3	4	5	6
24	cornea	1	1	1	1	1	1	1.0
	iris	0	1	0	0	0	0	0.2
	conjunctivae	3	5	2	2	2	5	3.2
48	cornea	1	1	1	1	1	1	1.0
	iris	0	1	0	0	0	0	0.2
	conjunctivae	6	4	2	1	1	2	2.7
72	cornea	1	1	1	1	1	1	1.0
	iris	0	1	0	0	0	0	0.2
	conjunctivae	2	6	2	0	2	1	2.2
7-days	cornea	0	0	0	X	0	0	0
	iris	0	0	0	X	0	0	0
	conjunctivae	0	0	0	X	0	0	0

X died, cage trauma, not related to test material.

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Study Nos. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, 75-51-0161-81,
Sep 76 - Dec 80

APPENDIX G

COMPOUND: AI3-35941-a		USAEHA STUDY NO. 75-51-0006-81									
ACUTE EYE EFFECTS NEW ZEALAND WHITE RABBITS		AEHA TOXICITY CATEGORY A			CONDITIONS - Single 24-hour application of 0.1 mL technical grade compound to one eye of each rabbit.						
Time of Reading Hrs-Days	Structure	Scores						Mean Score	Comments		
		1	2	3	4	5	6				
24	Cornea	0	0	0	0	0	0	0	0		
	Iris	0	0	0	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0	0	0	0		
48	Cornea	0	0	0	0	0	0	0	0		
	Iris	0	0	0	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0	0	0	0		
72	Cornea	0	0	0	0	0	0	0	0		
	Iris	0	0	0	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0	0	0	0		
7-Days	Cornea	0	0	0	0	0	0	0	0		
	Iris	0	0	0	0	0	0	0	0		
	Conjunctivae	0	0	0	0	0	0	0	0		

G-1

Study Nos. 75-51-0001-81, 75-51-0006-81, 75-51-0121-81, 75-51-0161-81,
Sep 76 - Dec 80

APPENDIX H

COMPOUND: AI3-37418-a		AEHA TOXICITY CATEGORY A		CONDITIONS - Single 24-hour application of 0.1 mL technical grade compound to one eye of each rabbit.		USAEHA STUDY NO. 75-51-0121-81		
Time of Reading Hrs-Days	Structure	Scores						Comments
		1	2	3	4	5	6	
24	Cornea	0	0	1	0	0	0	0.2
	Iris	0	0	0	0	0	0	0
	Conjunctivae	0	0	2	0	0	1	0.5
48	Cornea	0	0	0	0	0	0	0
	Iris	0	0	0	0	0	0	0
	Conjunctivae	0	0	0	0	0	0	0
72	Cornea	0	0	0	0	0	0	0
	Iris	0	0	0	0	0	0	0
	Conjunctivae	0	0	0	0	0	0	0
7-Days	Cornea	0	0	0	0	0	0	0
	Iris	0	0	0	0	0	0	0
	Conjunctivae	0	0	0	0	0	0	0

APPENDIX I

COMPOUND: A13-37331-a		ACUTE EYE EFFECTS NEW ZEALAND WHITE RABBITS		TOXICITY CATEGORY* A	CONDITIONS -		USAEHA Study No. 75-51-0161-81		
Time of Reading Hrs-Days	Structure	1	2	3	4	5	6	Mean Score	Comments
24	cornea iris conjunctivae	0 0 1	0 0 2	0 0 0	0 0 2	0 0 2	0 0 1	0 0 1.3	
48	cornea iris conjunctivae	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
72	cornea iris conjunctivae	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
7-days	cornea iris conjunctivae	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	

APPENDIX J

PHOTOCHEMICAL IRRITATION-NEW ZEALAND WHITE RABBITS

COMPOUND: A13-36340-a		USAFHHA STUDY NO. 75-51-0001-81			
COMMENTS: USDA Proprietary Chemical		MEAN SKIN IRRITATION SCORE			
Observation Time	Erythema	Test Compound	Positive Control	Positive Non-UV Exposure	Control
		UV Exposure	UV Exposure	UV Exposure	UV Exposure
24 Hours	6	1	6	0	16
48 Hours	6	0	6	0	15
72 Hours	6	0	5	0	11
TOTAL	18	1	17	0	42
Mean Irritant Responses	6	0.3	5.7	0	14
Net Score		0.6	---	24	--

APPENDIX K
 PHOTOCHEMICAL IRRITATION-NEW ZEALAND WHITE RABBITS

COMPOUND:	AI3-35941-a	USAEHA STUDY NO. 75-51-0006-81
COMMENTS:	USDA Proprietary Chemical	

PROCEDURE: A single 0.05 mL application of a 25 percent (w/v) solution of test compound and a 10 percent (w/v) oil of Bergamot solution (positive control) in 95 percent ethyl alcohol were applied to the intact skin of six rabbits.

Observation Time	MEAN SKIN IRRITATION SCORE					
	Test Compound		Positive Control		Positive Control	
	UV Exposure	Erythema	Non-UV Exposure	Erythema	UV Exposure	Erythema
24 Hours	0	0	0	0	16	18
48 Hours	0	0	0	0	15	17
72 Hours	0	0	0	0	11	7
TOTAL	0	0	0	0	42	42
Mean Irritant Responses	0	0	0	0	14	14
Net Score	0	-	-	-	24	-

APPENDIX L

PHOTOCHEMICAL IRRITATION-NEW ZEALAND WHITE RABBITS

COMPOUND: AI3-37418-a		USAEHA STUDY NO. 75-51-0121-81			
COMMENTS: USDA Proprietary Chemical					
PROCEDURE: A single 0.05 mL application of a 25 percent (w/v) solution of test compound and a 10 percent (w/v) Oil of Bergamot solution (positive control) in 95 percent ethyl alcohol were applied to the intact skin of six rabbits.					
MEAN SKIN IRRITATION SCORE					
Observation Time	Test Compound UV Exposure	Test Compound Non-UV Exposure	Positive Control UV Exposure		
	Erythema	Erythema	Erythema		
24 Hours	11	12	7		
48 Hours	12	11	10		
72 Hours	12	10	11		
TOTAL	35	33	22		
Mean Irritant Responses	11.7	11	7.3		
Net Score	4.4	-	12.3		
Positive Control Non-UV Exposure					
	Edema	Edema	Edema		
24 Hours	6	8	6		
48 Hours	1	4	1		
72 Hours	3	11	3		
TOTAL	15	32	8		
Mean Irritant Responses	5	10.7	2.7		
Net Score	-	-	.7		

APPENDIX M

PHOTOCHEMICAL IRRITATION-NEW ZEALAND WHITE RABBITS

		USAEHA STUDY NO. 75-51-0161-81	
COMPOUND:	AI3-37331-a	COMMENTS:	USDA Proprietary Chemical
PROCEDURE: A single 0.05 mL application of a 25 percent (w/v) solution of test compound and a 10 percent (w/v) oil of Bergamot solution (positive control) in 95 percent ethyl alcohol were applied to the intact skin of six rabbits.			
MEAN SKIN IRRITATION SCORE			
Observation Time	Test Compound UV Exposure	Test Compound Non-UV Exposure	Positive Control UV Exposure
	Erythema Edema	Erythema Edema	Erythema Edema
24 Hours	12 4	12 2	18 0
48 Hours	5 1	15 0	14 15
72 Hours	2 1	12 0	11 12
TOTAL	19 6	15 5.0	41 .3
Mean Irritant Responses	6.3 2.0	5.0 -.3	13.7 15
Net Score	3.0	-	19.4
			-

APPENDIX N

COMPOUND: Al3-36340-a

GUINEA PIG SENSITIZATION
MALE
HARTLEY STRAIN
Substance: AI3-36340-a
Identify: USDA Proprietary Chemical

N-1

APPENDIX 0

COMPOUND: A13-35941-a

GUINEA PIG SENSITIZATION
MALE
HARTLEY STRAIN

Substance: AI3-35941-a

Identify: USDA Proprietary Chemical

Scoring Time 24 hours	Mean Body Wt (G) Initial Final	Mean Irritation Scores						Comments	
		Diluent		Test Compound		Initial	Final		
		Initial	Final	Initial	Final				
Test Compound	374 +45 -93	607	0	0	0	0.8			
Mean Irritation Scores									
Scoring Time 48 hours	Mean Body Wt (G) Initial Final	Mean Irritation Scores						Comments	
		Diluent		Test Compound		Initial	Final		
		Initial	Final	Initial	Final				
Test Compound	--	--	0	0	0	0	0		
Final Scores									
								>100 - Strong Sensitizing	
								25-100 - Mild Sensitizing	
								<25 - No Sensitizing	

0-1

APPENDIX P

COMPOUND: AI3-37418-a

GUINEA PIG SENSITIZATION
MALE
HARTLEY STRAIN

Substance: AI3-37418-a
Identify: USDA Proprietary Chemical
Positive Control: DNCB

Scoring Time 24 hours	Mean Body Wt (G)		Mean Irritation Scores				Comments
	Initial	Final	Diluent	Test Compound	Initial	Final	
Test Compound	405 +26	626 +67	0	0	0.8	1.6	
Positive Control	441 +41	683 +54	0	0	30	529	
Scoring Time 48 hours	Mean Body Wt (G)		Mean Irritation Scores				Comments
	Initial	Final	Diluent	Test Compound	Initial	Final	
Test Compound	--	--	0	0	0	0	
Positive Control			0	0	8	209	

Final Scores
>100 - Strong Sensitizing
25-100 - Mild Sensitizing
<25 - No Sensitizing

APPENDIX Q

COMPOUND: A13-37331-a

GUINEA PIG SENSITIZATION
MALE
HARTLEY STRAIN

Substance: AI3-37331-a

Identify: USDA Proprietary Chemical

Scoring Time 24 hours	Mean Body Wt (G) Initial Final	Mean Irritation Scores				Comments
		Diluent Initial	Diluent Final	Test Compound Initial	Test Compound Final	
Test Compound	626 <u>+60</u>	844 <u>+107</u>	0	0	30	69

Test Compound 48 hours	Mean Body Wt. (G) Initial Final	Mean Irritation Scores			Final Scores ≥100 - Strong Sensitizing 25-100 - Mild Sensitizing <25 - No Sensitizing
		Diluent Initial Final	Test Compound Initial Final	Final	
Test Compound	--	0	0	14	28

Final Scores